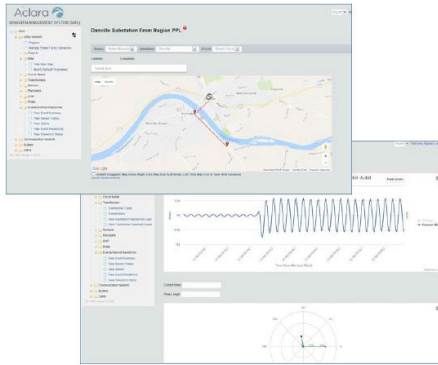# Aclara

Sensor Management System (SMS)
Software 5.0 with Predictive Grid® Analytics

FEATURES

- Performs waveform analysis prior to sending data to your DMS
- Programmed with the feeder topology for event correlation
- Ranks worst performing circuits with fault and power quality data
- Substation transformer overload, phase imbalance & peak load reports
- Circuit load monitoring and balance reports
- Deploys in your data center or as a hosted solution
- Remote sensor management, firmware upgrades
- Integrated DNP Concentrator and seamless integration

Aclara's SMS provides the tools, analytics and situational awareness to help you handle 21st century distribution challenges. It enables a higher standard of accuracy with distribution monitoring analytics that are actionable and can help protect assets while improving reliability.

SMS WITH PREDICTIVE GRID ANALYTICS: THE INTELLIGENCE BEHIND THE SENSOR

Aclara is the only solution with SMS – a configurable Sensor Management System with Predictive Grid(R) Analytics that takes sensor data through four layers of analysis to improve accuracy and effectiveness. SMS also provides a method for the utility to aggregate data from thousands of sensors and provide a single connection to the DMS or Historian rather than putting that burden on other systems the utility would need to design.

Aclara sensors capture, time stamp and communicate critical measurements and event waveforms back to SMS software where four layers of processing and analysis determines the specific type of event occurring on your distribution network. SMS only sends the most important, accurate information to your Historian, DMS or SCADA systems and pushes any pre-configured alarms via text or email to assigned personnel. Other events that do not cause immediate outages like momentaries or line disturbances are logged in SMS so your engineers can continue to mine this data to learn more about your network and prevent future outages.

ANALYTIC REPORTS, CONFIGURABLE ALARMS AND ACTIONABLE INTELLIGENCE

In addition to our detailed load monitoring and balance reports for circuits, Aclara 5.0 includes configurable overload reports and alarms that can be customized to your transformer manufacturer's nameplate rating. Alarms can tell you when transformers are being stressed beyond capacity and can be prioritized by severity. For power quality, Aclara will rank your worst performing circuits so you'll know where to send crews out to investigate, and possibly even avoid your next outage.

HIGHLY ACCURATE, SCALABLE ARCHITECTURE WITH FLEXIBLE DEPLOYMENT OPTIONS

SMS was designed from the ground up to enable a highly accurate and scalable architecture. With SMS you can easily manage deployments of thousands of sensors and integrate accurate sensor data into your SCADA or DMS seamlessly through our DNP3 interface. Sensor data can be transmitted over the cellular or wireless network of your choice and SMS can be installed in the utility data center or as a hosted service.

MANAGEMENT
- Up to 5,000 MV Sensors per SMS server
- Remote firmware upgrades
- Multiple configuration templates
- Bulk import of sensor configuration for large scale deployments
- GPS-based sensor location and circuit mapping
- User account management

ALARM AND EVENT CONFIGURATIONS
- Fault alarm configurations
  - RMS current or Di/Dt settings
  - Wait, inrush, reset times
  - Alarm thresholds
- High current thresholds
- Substation overload thresholds (summer/winter)

FAULTS AND DISTURBANCES DETECTION, CLASSIFICATION, LOCATION AND ANALYTICS
- Waveform and circuit view analytics for accurate fault detection, classification, and location
- Multi-phase, multi-location fault processing
- Google Map view of fault location
- Permanent faults, momentaries, line disturbances, power disturbances, loss of voltage
- Lateral fuse, load switching, trunk fault, capacitor bank switching, adjacent phase/circuit
- RMS and peak fault current

WAVEFORM CAPTURE
- Display of fault current, voltage waveforms and phasor diagram
- Configurable buffer size
- COMTRADE or .csv waveform export

CONFIGURABLE ALARM/EVENT REPORTING
- Alert message sent through email, text, DNP3 or available in the SMS event logging dashboards
- Permanent Fault, Momentary Fault, Line Disturbance, Outage/Power Off/Power On, Power Disturbance, High Current Threshold, Loss of Voltage, Sags/Surges, Substation Transformer Overload

POWER QUALITY REPORTING
- Sags, surges
- Harmonics
- Power factor, phase angle
- W, VA, VAR

RELIABILITY, ASSET MANAGEMENT AND PLANNING TOOLS
- Interval load data graphing, reporting, direction
- Instantaneous and average values
- Load Balance and technical loss reporting
- Fault, disturbance, PQ event reporting and filtering
- Circuit ranking and trending of faults and disturbances
- Automatic phase identification
- Hydraulic recloser operation count
- Report export to Excel, .csv file

GOOGLE MAP VIEW
- Integrated Google Map view of sensor locations, faults, and real-time load
- GPS location

DNP-3 INTEGRATION TOOLS
- Full DNP3 Level 3 interface support
- Virtual outstation using grouping and template options
- Supports multiple DNP masters
- Polled reads, writes, and unsolicited protocol support
- Configurable DNP database limits
- Configurable event clear timers
- Outstation report generation

COMMUNICATIONS MONITORING
- Loss of communications alarming
- Cellular and Wi-Fi signal strength
- ESN and MAC address tracking

DEPLOYMENT CONFIGURATIONS
- Licensed: installed on Linux or VM server at utility data center
- Hosted: dedicated server hosted by Aclara; no system requirements for additional hardware needed
- Distributed: Super Aggregator, SMS on hardened industrial PC

SYSTEM REQUIREMENTS
- Intel XEON quad core processor, minimum 2.4 GHz
- 1,000 sensors (16 GB Memory, 500 GB x 2 Hard Drive)
- 2,500 sensors (16 GB Memory, 1TB x 2 Hard Drive)
- 5,000 sensors (32 GB Memory, 1TB x 2 Hard Drive)
- Platform supports SuSE Linux Enterprise Server 11.3
- Dual Ethernet

Recommended Features:

- Redundant power supply or battery backup